

CLAIMS

What is claimed is:

1. A functional module configured to be received in an electronic equipment enclosure that includes a card cage, the functional module comprising:

a front panel;

a card that includes electronic circuitry, the card having two side edges and being attached to the front panel, and the card being supported by the card cage at its two side edges, as well as at a location between the side edges when the functional module is received in the electronic equipment enclosure; and

at least one connector attached to the card and configured for electrical communication with the electronic circuitry.

2. The functional module as recited in claim 1, wherein the card is at least double-wide.

3. The functional module as recited in claim 1, wherein the card defines at least one cutout configured and arranged to engage a portion of the card cage proximate the location between the side edges of the card.

4. The functional module as recited in claim 1, wherein the card is supported by the card cage at a second location between the side edges.

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5. The functional module as recited in claim 1, further comprising at least two fasteners that pass through the front panel and are configured to removably engage the card cage, each of the fasteners defining a circumferential slot and comprising:

an e-clip substantially disposed in the circumferential slot; and

a spring disposed about a portion of the fastener.

6. The functional module as recited in claim 1, wherein the at least one connector is located proximate the front panel.

7. The functional module as recited in claim 1, wherein the at least one connector is located proximate a rear edge of the card.

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8. In a functional module configured to be received in an electronic equipment enclosure that includes a card cage having a plurality of card guides disposed in a spaced apart arrangement, and the functional module including a front panel, a card configured to be attached to the front panel and comprising:

a body having two side edges and being configured to be removably received in the card cage, the card being supported by the card cage at its two side edges, as well as at a location between the side edges, when the functional module is received in the card cage; and

electronic circuitry disposed on the body.

9. The card as recited in claim 8, wherein the body is at least double-wide.

10. The card as recited in claim 8, wherein the card is supported by the card cage at a second location between the side edges.

11. The card as recited in claim 8, wherein the body defines at least one cutout configured and arranged to engage a portion of the card cage proximate the location between the side edges of the card.

12. The card as recited in claim 11, wherein the at least one cutout comprises a slot defined by the body, the slot extending a portion of the length of the body and being located substantially equidistant from each of the two side edges of the card.

13. In an electronic equipment enclosure having a card cage that includes, at least, first and second card guides, as well as a third card guide interposed between the first and second card guides in a spaced apart arrangement configured to receive two single-wide functional modules in an edge-to-edge position, a functional module configured to be removably received in the electronic equipment enclosure, the functional module comprising:

a front panel;

a card attached to the front panel and including electronic circuitry, the card having first and second side edges and defining at least one cutout having opposing edges and the at least one cutout being interposed between the first and second side edges so that when the functional module is received in the card cage, the first and second side edges of the card are supported by the first and second card guides, respectively, and the opposing edges of the at least one cutout defined by the card are supported by the third card guide; and

at least one connector attached to the card and configured for electrical communication with the electronic circuitry.

14. The functional module as recited in claim 13, wherein the at least one cutout comprises a slot defined by the card, the slot extending a portion of the length of the card.

15. The functional module as recited in claim 13, wherein the at least one cutout is located substantially equidistant from each of the two side edges of the card.

16. The functional module as recited in claim 13, wherein the card is at least double-wide.

17. The functional module as recited in claim 13, further comprising at least two fasteners that pass through the front panel and are configured to removably engage the card cage, each of the fasteners defining a circumferential slot and comprising:

an e-clip substantially disposed in the circumferential slot; and

a spring disposed about a portion of the fastener.

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18. An electronics system, comprising:
- an electronic equipment enclosure that includes a card cage having a plurality of card guides disposed in a spaced apart arrangement; and
 - at least one functional module configured to be removably received in the electronic equipment enclosure, the functional module comprising:
 - a front panel;
 - a card that includes electronic circuitry, the card having two side edges and being attached to the front panel, and the card being supported by the card cage at its two side edges, as well as at a location between the side edges, when the functional module is received in the electronic equipment enclosure; and
 - at least one connector attached to the card and configured for electrical communication with the electronic circuitry.
19. The electronics system as recited in claim 18, wherein the card is at least double-wide.
20. The electronics system as recited in claim 18, wherein the card defines at least one cutout configured and arranged to engage a portion of the card cage proximate the location between the side edges of the card.
21. The electronics system as recited in claim 18, wherein the card is supported by the card cage at a second location between the side edges.

22. The electronics system as recited in claim 18, wherein the functional module further comprises at least two fasteners that pass through the front panel and are configured to removably engage the card cage, each of the fasteners defining a circumferential slot and comprising:

an e-clip substantially disposed in the circumferential slot; and

a spring disposed about a portion of the fastener.

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